Chevron

September 30, 1997

Chevron Products Company
6001 Bollinger Canyon Road
Building L
San Ramon, CA 94583
P.O. Box 6004
San Ramon, CA 94583-0904

Marketing – Sales West
Phone 510 842-9500

Mr. Barney Chan
Alameda County Health Care Services
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Chevron Service Station #9-0076
4265 Foothill Blvd.
Oakland , California

Dear Mr. Chan:

I am enclosing a copy of the Soil and Groundwater Investigation report prepared by Pacific Environmental Group, Inc. and dated September 23, 1987. This report includes the installation of monitoring wells C-1 through C-4 as requested in your letter of August 21, 1997.

If you have any questions, call me at (510) 842-9136.

Sincerely,
CHEVRON PRODUCTS COMPANY

Philip R. Briggs
Site Assessment and Remediation Project Manager

Enclosure

cc. Bill Scudder, Chevron

97 OCT -8 PM 2:27

#103

SOIL AND GROUNDWATER INVESTIGATION

CHEVRON USA STATION #0076

4625 FOOTHILL BOULEVARD AT HIGH STREET

OAKLAND, CALIFORNIA

Submitted to

GETTLER-RYAN INC.

September 23, 1987

Project No. 120-57.01

PACIFIC ENVIRONMENTAL GROUP, INC.

1601 Civic Center Drive, Suite 202, Santa Clara, CA 95050

(408) 984-6536

TABLE OF CONTENTS

SOIL AND GROUNDWATER INVESTIGATION

CHEVRON USA STATION #0076

4625 FOOTHILL BOULEVARD AT HIGH STREET

OAKLAND, CALIFORNIA

INTRODUCTION

This report presents the results of a soil and groundwater investigation conducted by Pacific Environmental Group, Inc. (PACIFIC) at the Chevron USA service station located at 4625 Foothill Boulevard at High Street in Oakland, California (See Figures 1 and 2).

Background

Based on information provided to us, the site was remodeled recently, and at the time of tank replacement, evidence of product loss was discovered.

The purpose of PACIFIC's investigation was to document soil and groundwater conditions at the site. PACIFIC is not aware of any previous hydrogeologic investigations that have been conducted at the site.

Scope of Work

A total of five soil borings were drilled at the site on August 13 and 14, 1987, and four of these were converted to monitoring wells C-1, C-2, C-3 and C-4. The fifth soil boring is designated Boring C-A. The drilling locations were selected by Chevron and are shown on Figures 2 and 3. The current investigation included installation of the four groundwater monitoring wells, laboratory analysis of soil samples from the five borings, and sampling and analysis of groundwater.

EXPLORATORY DRILLING AND MONITORING WELL INSTALLATION

The exploratory borings were drilled using eight-inch diameter hollow-stem auger drilling equipment and were logged by a PACIFIC geologist using the Unified Soil Classification System and standard geologic techniques. Boring logs are attached to this report. Soil samples for logging and chemical analysis were collected at five-foot depth intervals by advancing a California-modified split-spoon sampler with brass liners into undisturbed soil beyond the tip of the auger. The sampler was driven a maximum of 18 inches, using a 140-pound hammer with a 30-inch drop. The soil samples for chemical analysis were retained in brass liners and were sealed in clean glass containers. These samples were placed on ice for transport to the laboratory accompanied by chain-of-custody documentation, which is attached.

The borings to be completed as wells were advanced approximately 10 feet into the water-bearing zone, to a maximum total depth of 40.5 feet. Boring C-A was advanced to a depth of 25 feet, and was then backfilled with concrete to the ground surface.

Borings C-1 through C-4 were converted to groundwater monitoring wells by installing 3-inch diameter, Schedule 40 PVC casing and 0.020-inch factory-slotted screen. Screen was placed through the entire saturated section, and extends approximately 10 feet above the static water level. Graded sand pack was placed in the annular space across the screened interval, and extends approximately 2 feet above the top of the screens. A bentonite and concrete seal extends from the sand pack to the ground surface. A locking cap and protective vault box were installed on the top of each well. Following well completion, the elevations of the vault boxes of all site monitoring wells were surveyed by Gettler-Ryan to a project datum.

SUBSURFACE CONDITIONS

The exploratory borings at the site encountered predominantly clayey soil to the total depth explored. A clayey sand to clayey gravel was encountered at depths ranging from 6 to 8 feet in Borings C-1, C-2, C-4, and C-A, and extended to a maximum depth of 18 feet. A second clayey sand to clayey gravel unit was encountered at a depth ranging from 28 to 32 feet in Borings C-1, C-2, and C-3, and extended to a maximum depth of 38 feet.

The clayey sand unit extending to a depth of 12 feet in Boring C-A appears to be fill material placed during construction of the station sign. Subsurface conditions are summarized on Figure 4, Cross-Section A-A'.

Groundwater was encountered at an approximate depth of 30 feet, and stabilized at an approximate depth of 27 feet. Groundwater (liquid level) contours based on water or product level data collected on September 1, 1987 indicate that groundwater beneath the site flows to the southwest at an approximate gradient of 0.10 (Figure 3). It is important to note that this is a reflection of piezometric head measured in each of the wells, including Well C-2 (which currently contains floating product as discussed in the analytical results section). Correction for floating product in Well C-2 results in a slightly more southerly groundwater flow direction (still southwest). This flow direction is generally consistent with the regional groundwater flow direction inferred from surface topography and local drainages.

GROUNDWATER SAMPLING

The site monitoring wells were sampled by PACIFIC on September 1, 1987. The sampling procedure consisted of first measuring the water level in each well, and checking each well for the presence of floating petroleum product using a clear Teflon bailer. Free product was detected in Well C-2 only, which was not sampled. The remaining wells were then purged to

dryness using a bladder pump constructed of Teflon and stainless steel materials. During purging, temperature, pH and electrical conductivity were monitored in order to collect a representative sample. After water levels partially restabilized, samples were collected using a Teflon bailer and were placed into appropriate EPA-approved containers. The samples were labeled, logged onto chain-of-custody documents, and transported on ice to the laboratory.

ANALYTICAL RESULTS

Three soil samples from each boring and one groundwater sample from each well were analyzed for total volatile hydrocarbons (calculated as gasoline), and benzene, toluene, and xylene isomers (BTX). The analyses for total volatile hydrocarbons were performed by the purge-and-trap technique with final detection by gas chromatography using a flame ionization detector and a photo-ionization detector. Certified Analytical Reports and chain-of-custody documents are attached to this report. Analytical results are summarized on Table 1.

The soil analyses indicated generally low gasoline concentrations (less than 100 parts per million, ppm) for all samples with the exception of the samples within the 10-foot depth interval in Borings C-A, C-2, and C-4. The gasoline concentrations in these samples were 3,600 ppm, 1,200 ppm, and 580 ppm, respectively.

Well C-2 was found to contain more than two feet of floating product, so no groundwater sample was analyzed. Dissolved gasoline was detected in Wells C-1, C-3, and C-4 at respective concentrations of 22,000 parts per billion (ppb), 250 ppb, and 3,200 ppb.

SUMMARY OF FINDINGS

The following summarizes the findings and conclusions of this investigation:

- The site is underlain by primarily clayey soils to a depth of 40.5 feet, the maximum total depth explored at the site.

- Static groundwater occurs at an approximate depth of 27 feet below the site. The gradient at the site is approximately 0.10, with flow toward the southwest.

- Soil samples from a depth of approximately 10 feet in Borings C-A, C-2, and C-4 were found to contain gasoline at concentrations of 580 ppm or greater.

- Floating product was found in Well C-2 at a thickness of greater than 2 feet. Dissolved gasoline and BTX compounds were detected in Wells C-1, C-3, and C-4. Dissolved gasoline concentrations ranged from 250 ppb to 22,000 ppb.

If you have any questions concerning the contents of this report, please call.

Very truly yours,

PACIFIC ENVIRONMENTAL GROUP, INC.

Erin Garner
Project Geologist

Debra J. Moser
Senior Geologist
CEG 1293

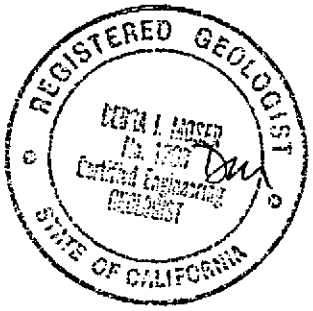


TABLE 1

Summary of Analytical Results

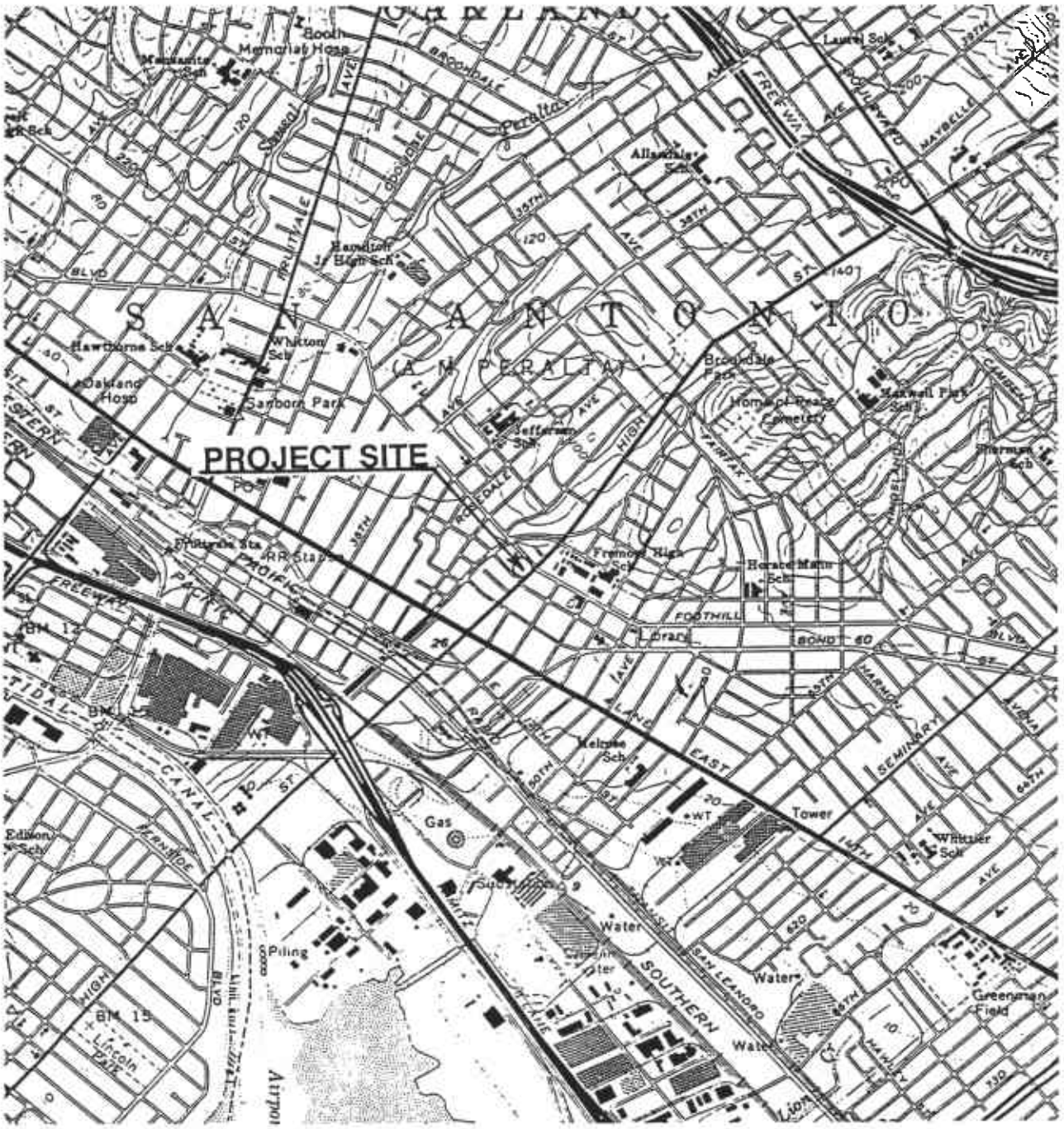
Groundwater Samples (Sample Date: 9/1/87)

Well	Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Xylenes (ppb)
C-1	22,000	800	1,000	2,900
C-2	(floating product detected)			
C-3	250	11	8	7
C-4	3,200	520	66	130
Detection Limits	50	1	1	1

Soil Samples

Boring	Depth (feet)	Gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Xylenes (ppm)
C-A	8.5-10.0	3,600	33	12	350
	19.0-20.5	63	2.0	0.1	2.0
	23.5-25.0	52	1.8	nd	0.4
C-1	9.0-10.5	nd	nd	nd	nd
	19.0-20.5	nd	nd	nd	nd
	29.0-30.5	nd	nd	nd	nd
C-2	9.0-10.5	1,200	16	54	120
	19.0-20.5	nd	0.07	0.8	nd
	29.0-30.5	48	0.93	0.1	3
C-3	9.0-10.5	7	0.05	nd	0.4
	19.0-20.5	nd	nd	nd	nd
	29.0-30.5	nd	nd	nd	nd
C-4	9.0-10.5	580	3.9	23	46
	19.0-20.5	nd	nd	nd	nd
	29.0-30.5	nd	nd	nd	nd
Detection Limits		5	0.05	0.1	0.4

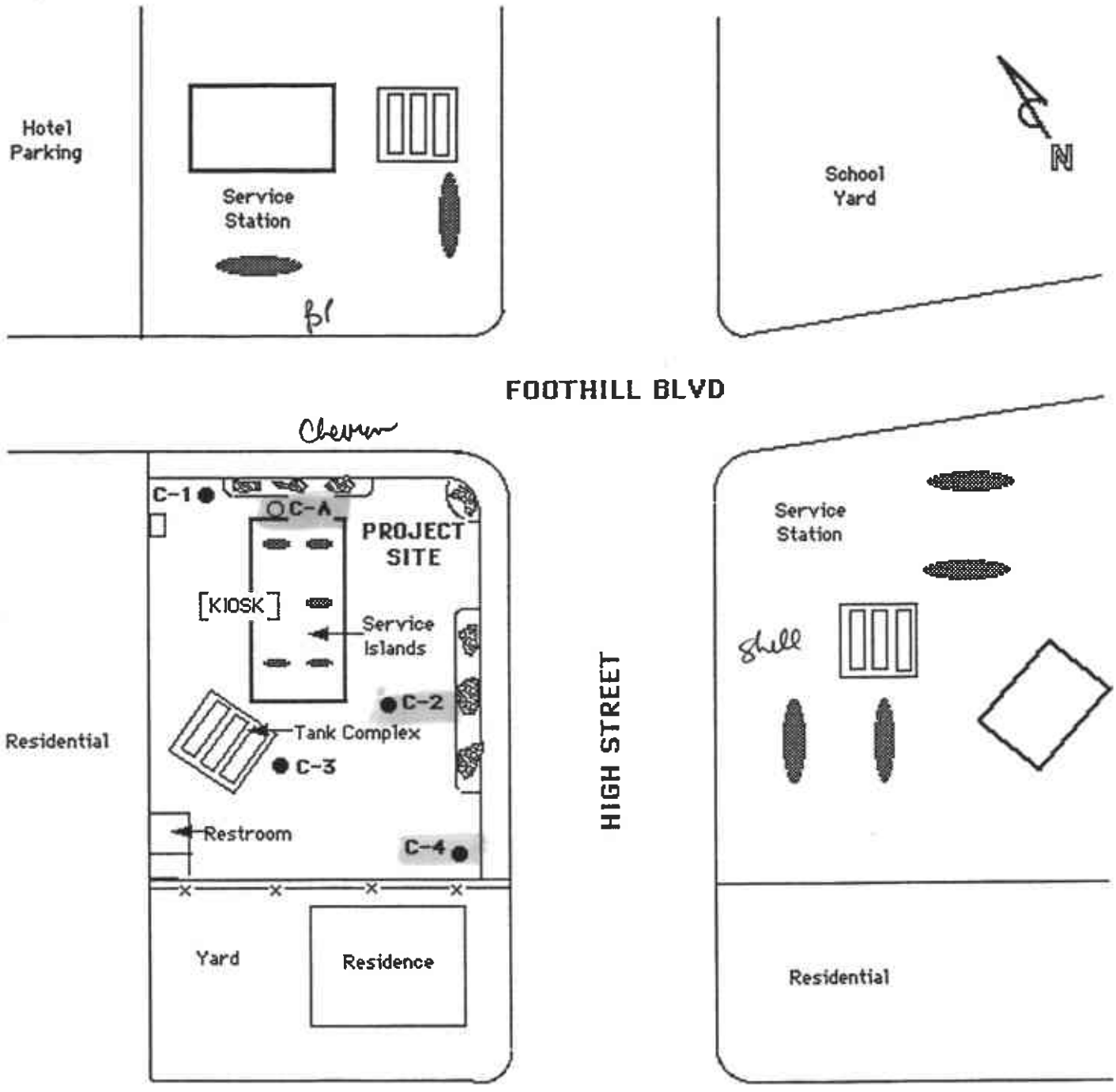
Notes: nd - not detected
ppb - parts per billion
ppm - parts per million



Scale: 1 Inch = 2000 Feet

Source: U.S. Geological Survey Topographic Map

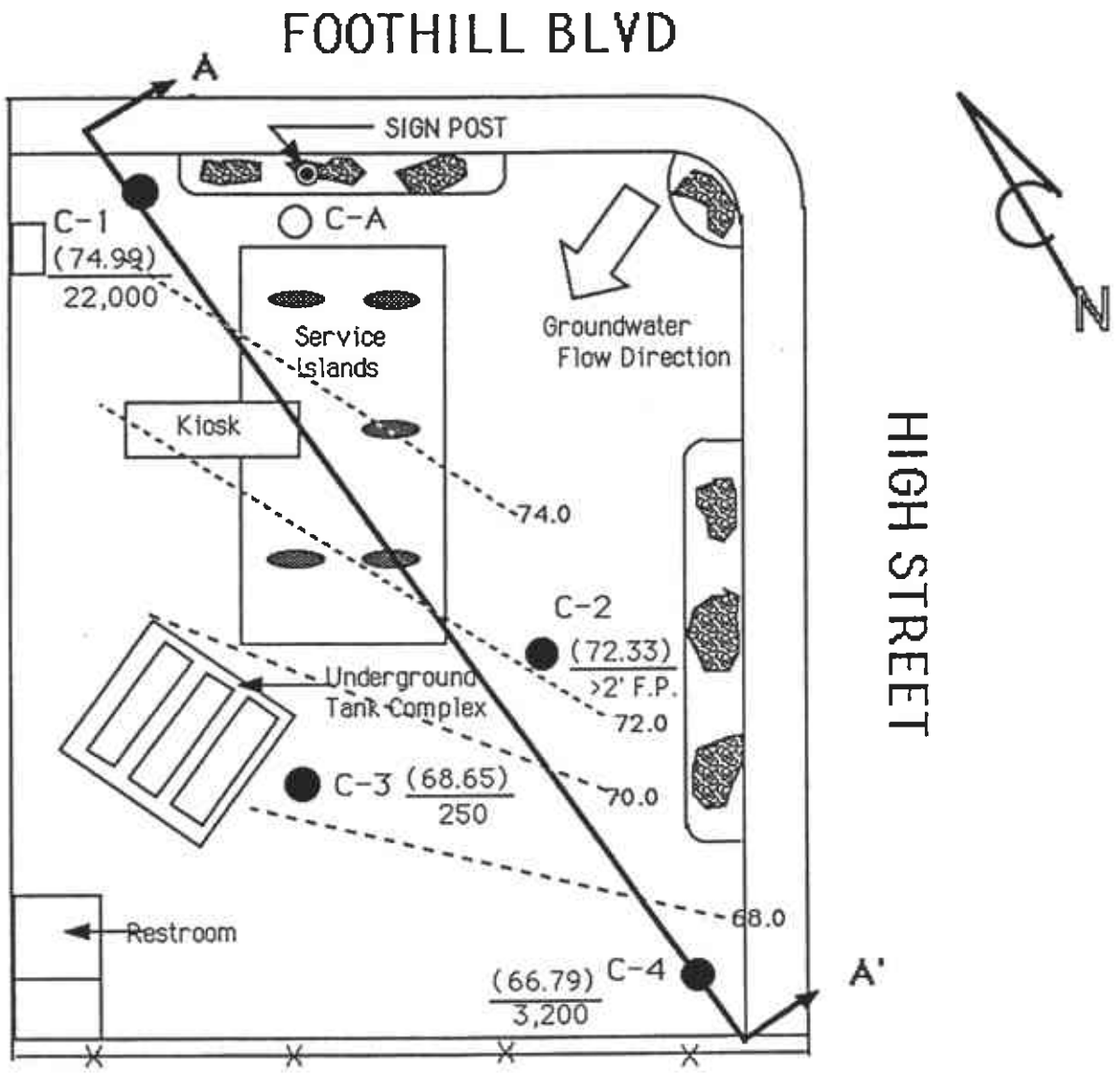
PACIFIC ENVIRONMENTAL GROUP, INC.	CHEVRON USA SERVICE STATION #0076 FOOTHILL BOULEVARD & HIGH STREET OAKLAND, CALIFORNIA SITE LOCATION MAP	FIGURE 1 PROJECT NO. 120-57.01



Scale: 1 inch = 60 feet

Note: project site is drawn to scale, but scale in surrounding areas is approximate

PACIFIC ENVIRONMENTAL GROUP, INC.	CHEVRON USA SERVICE STATION #0076 FOOTHILL BOULEVARD AND HIGH STREET OAKLAND, CALIFORNIA EXTENDED SITE MAP	FIGURE 2 PROJECT NO. 120-57.01



LEGEND

C-4 ●	GROUNDWATER MONITORING WELL
(66.79)	GROUNDWATER ELEVATION (9/1/87, PROJECT DATUM)
3,200	HYDROCARBON CONCENTRATION (PPB) (F.P. = FLOATING PRODUCT)
74.0	GROUNDWATER ELEVATION CONTOUR LINE
C-A ○	EXPLORATORY BORING LOCATION

SCALE

0 30 60 90 FEET

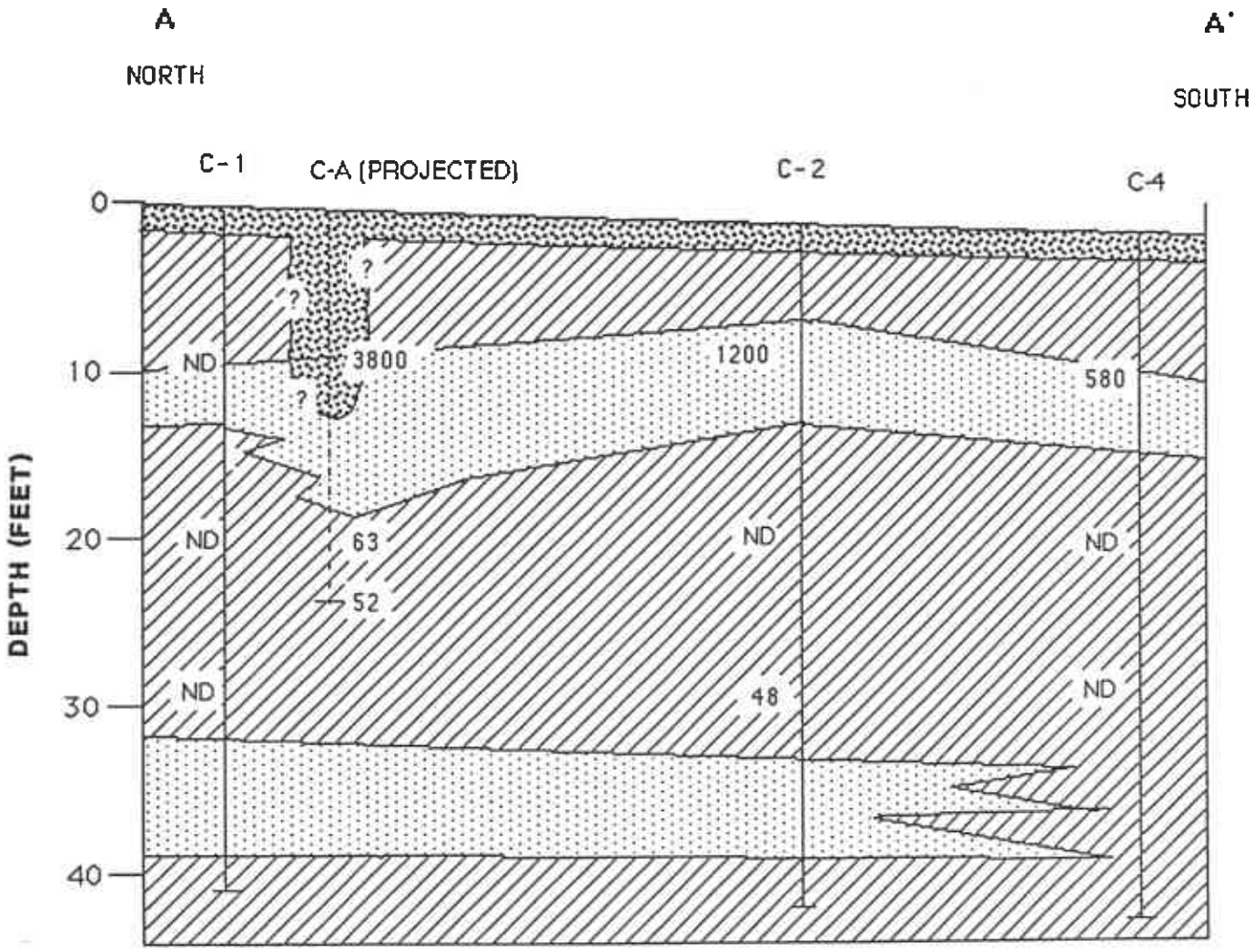
PACIFIC ENVIRONMENTAL GROUP, INC.

CHEVRON USA SERVICE STATION #0076
FOOTHILL BOULEVARD & HIGH STREET
OAKLAND, CALIFORNIA

GROUNDWATER CONTOUR MAP

FIGURE 3

PROJECT NO. 120-57.01



NOTE: SEE FIGURE 3 FOR LOCATION OF SECTION

APPROXIMATE SCALE: 1" = 30' HORIZONTAL
1" = 10' VERTICAL
(3X EXAGGERATION)

FILL

CLAY

SAND, GRAVEL, CLAYEY SAND AND GRAVEL

HYDROCARBON CONCENTRATIONS (PPM) ARE SHOWN AT THE APPROXIMATE DEPTH INTERVAL ANALYZED.

PACIFIC ENVIRONMENTAL GROUP, INC.

CHEVRON USA SERVICE STATION #0076
FOOTHILL BOULEVARD AND HIGH STREET
OAKLAND, CALIFORNIA

CROSS-SECTION A-A'

FIGURE 4

PROJECT NO. 120-57.01

WELL LOG
KEY TO ABBREVIATIONS

Drilling Method
- HSA - Hollow stem auger
- CFA - Continuous flight auger
- Air - Reverse air circulation

Gravel Pack
- CA - Coarse aquarium sand

Sampling Method
- Cal. Mod. - California modified split-spoon sampler (2" inner diameter) driven 18" by a 140-pound hammer having a 30" drop. Where penetration resistance is designated "P", sampler was instead pushed by drill rig.
- Disturbed - Sample taken from drill-return materials as they surfaced.
- n/a - Not applicable

Moisture Content
- Dr - Dry
- Dp - Damp
- Mst - Moist
- Wt - Wet
- Sat - Saturated

Sorting
- PS - Poorly sorted
- MS - Moderately sorted
- WS - Well sorted

Plasticity
- L - Low
- M - Moderate
- H - High

H-NU (ppm)
- ND - No detection

Density

Sands and gravels	Silts and clays
VL - Very loose	VS - Very soft
L - Loose	Sft - Soft
MD - Medium dense	MSt - Medium Stiff
D - Dense	Stf - Stiff
VD - Very dense	VSt - Very stiff
	Hd - Hard

Symbols
- ▽ - First encountered ground water
- ▼ - Static ground water level

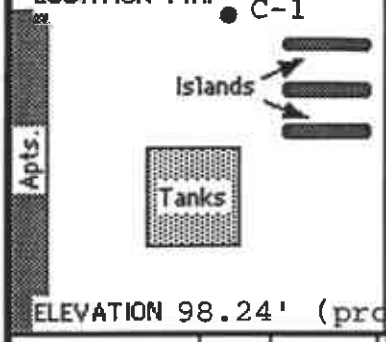
GRAIN-SIZE SCALE

GRADE LIMITS inches	GRADE LIMITS U.S. Standard sieve size	GRADE NAME
12.0		Boulders
3.0	3.0 in.	Cobbles
0.19	No. 4	Gravel
	coarse	
0.08	No. 10	
	medium	Sand
	No. 40	
	fine	
	No. 200	
		Silt
		Clay Size

PACIFIC ENVIRONMENTAL GROUP, INC.

UNIFIED SOIL CLASSIFICATION SYSTEM

PRIMARY DIVISIONS			GROUP SYMBOL	TYPICAL NAMES
COARSE GRAINED SOILS more than half is larger than #200 sieve	GRAVELS half of coarse fraction larger than #4 sieve	CLEAN GRAVELS (less than 5% fines)	GW	Well graded gravels, gravel-sand mixtures; little or no fines
			GP	Poorly graded gravels or gravel-sand mixtures; little or no fines
		GRAVEL WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS half of coarse fraction smaller than # 4 sieve	CLEAN SANDS (less than 5% fines)	SW	Well graded sands, gravelly sands, little or no fines
			SP	Poorly graded sands or gravelly sands, little or no fines
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures, plastic fines
FINE GRAINED SOILS more than half is smaller than #200 sieve	SILTS AND CLAYS liquid limit less than 50%		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts, with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS liquid limit more than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils



PACIFIC ENVIRONMENTAL GROUP, INC.

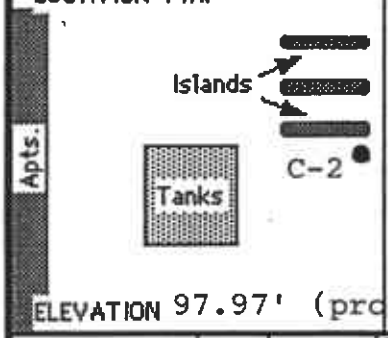
WELL / BORING NO. C-1
PAGE 1 OF 1

PROJECT NO. 120-57.01
LOGGED BY: E.G.
DRILLED BY: BAYLAND
DRILLING METHOD: HSA
SAMPLING METHOD: CAL. MOD.
CASING TYPE: SCH. 40 PVC
SLOT SIZE: 0.020
GRAVEL PACK: CA

CLIENT: G.R. CHEVRON USA
DATE DRILLED: 8-13-87
LOCATION: HIGH AND FOOTHILL
HOLE DIAMETER: 8"
HOLE DEPTH: 40-1/2'
WELL DEPTH: 40'
WELL DIAMETER: 3"

WELL COMPLETION	MOISTURE CONTENT	PENETRATION RESISTANCE (BLOW/FT)	DEPTH (feet)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
							ASPHALT AND BASEROCK.
	Dp		2			CL	CLAY; fill; black; silty; 0-10% fine to coarse sand; disturbed; soft; no product odor.
			4			CL	CLAY; olive; silty; 0-10%fine to medium sand; red to black; FeO stained.
	Dp	24	6				@ 7': 20-30% fine to coarse sand; trace caliche; occasional pores; FeO mottled; stiff; trace fine to coarse gravel; no product odor.
	Dp-Mst	28	8				
			10			SC	CLAYEY SAND; yellowish brown; 15-25% fines; fine to coarse grained; 0-10% fine to coarse gravel; sub-rounded; no product odor.
			12				
	Mst	40	14			CL	CLAY; olive to strong brown; !0-20% fine to medium sand; trace coarse sand; FeO stains; very stiff; wet in root holes; no product odor.
			16				
			18				@ 19': 20-30% fine sand intermittently; moderate plasticity; no product odor.
	Mst -Wt	49	20				
			22				
			24				@ 24': 20-30% fine to coarse sand; trace fine gravel; very stiff; moderate plasticity; no product odor.
	Mst -Wt	56	26				
			28				
			30				@ 29': light gray; 0-10% fine sand; moderate plasticity; caliche mottle; very stiff; no product odor.
	Mst -Wt	62	32				
			34			SP-SC	SAND TO CLAYEY SAND; olive to brown; 5-20% fines; fine to coarse grained; 10-25% fine to medium gravel; very dense; faint product odor.
	Wt	68	36				
			38				
			40			CL	CLAY; strong brown; as above; 20-30% fine sand to coarse gravel; stiff; no product odor.
	Wt	70					Bottom of boring at 40-1/2'

LOCATION MAP



ELEVATION 97.97' (project)

PACIFIC ENVIRONMENTAL GROUP, INC.

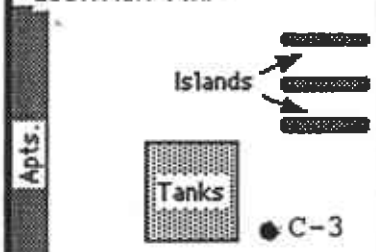
WELL / BORING NO. C-2
PAGE 1 OF 1

PROJECT NO. 120-57.01
LOGGED BY: E.G.
DRILLED BY: BAYLAND
DRILLING METHOD: HSA
SAMPLING METHOD: CAL. MOD.
CASING TYPE: SCH. 40 PVC
SLOT SIZE: 0.020
GRAVEL PACK: CA

CLIENT: G.R. CHEVRON USA
DATE DRILLED: 8-13-87
LOCATION: HIGH AND FOOTHILL
HOLE DIAMETER: 8"
HOLE DEPTH: 40-1/2'
WELL DEPTH: 40'
WELL DIAMETER: 3"

WELL COMPLETION	MOISTURE CONTENT	PENETRATION RESISTANCE (BLOW/FT)	DEPTH (feet)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
							ASPHALT AND BASEROCK.
			2			CL	CLAY FILL; black; abundant root fragments; silty; 0-10% fine sand; soft; faint product odor.
	Dp	22	4			CL	CLAY; gray; 5-15% fine to coarse sand; moderate plasticity; silty; trace fine gravel; stiff; no product odor.
			6				
			8			CL-GC	CLAY TO CLAYEY GRAVEL; strong brown; 30-60% fine to coarse sand and gravel; FeO mottled; sub-rounded to sub-angular; very stiff; strong product odor.
	Dp-Mst	42	10				
			12				
			14			CL	CLAY; Yellowish brown; silty; moderate plasticity; occasional root fragments; FeO mottled; very stiff; 10-20% fine to medium sand; no product odor.
	Mst-Wt	50	16				
			18				
	Mst--Wt	not rec.	20				
			22				@ 24': contains up to 25% fine to coarse sand and fine gravel; faint product odor.
			24				
	Mst--Wt	70	26				
			28				@ 29': Strong product odor.
	Wt	42	30				
			32			SC	CLAYEY SAND; dark yellowish brown; 15-20% fines; fine to medium grained; medium dense; no product odor.
	Wt	24	34				
			36				
			38				CLAY; dark yellowish brown; 15-30% fine to coarse sand; silty; 10-15% fine to medium gravel; very stiff; no product odor.
	Wt	57	40			CL	
							Bottom of Boring at 40-1/2'

LOCATION MAP



ELEVATION 98.13' (project)

PACIFIC ENVIRONMENTAL GROUP, INC.

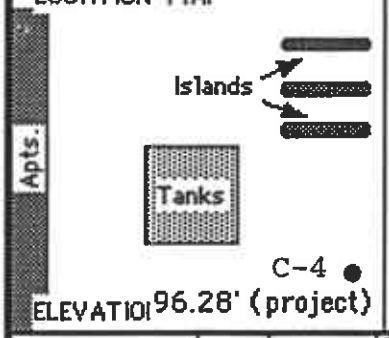
WELL / BORING NO. C-3
PAGE 1 OF 1

PROJECT NO. 120-57.01
LOGGED BY: E.G.
DRILLED BY: BAYLAND
DRILLING METHOD: HSA
SAMPLING METHOD: CAL. MOD.
CASING TYPE: SCH. 40 PVC
SLOT SIZE: 0.020
GRAVEL PACK: CA

CLIENT: G.R. CHEVRON USA
DATE DRILLED: 8-13-87
LOCATION: HIGH AND FOOTHILL
HOLE DIAMETER: 8"
HOLE DEPTH: 40-1/2'
WELL DEPTH: 40'
WELL DIAMETER: 3"

WELL COMPLETION	MOISTURE CONTENT	PENETRATION RESISTANCE (BLOW/FT)	DEPTH (feet)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
			0				ASPHALT AND BASEROCK.
			2			CL	CLAY FILL; olive to black; 0-10% fine sand; silty; soft; no product odor.
			4			CL	CLAY; olive; 5-10% fine to coarse sand; slightly silty; stiff; no product odor.
	Dp	P	6				
			8				
	Dp	79	10				@ 9': yellowish brown; 30-40% fine sand to medium gravel; stiff; faint product odor.
			12				
	Dp	36	14				@14': yellowish brown; 5-10% fine to medium sand; FeO mottled; trace root fragments; moderate plasticity; no product odor.
			16				
			18				
	Dp	38	20				@19': no product odor.
			22				
	Dp	46	24				@ 24': no product odor.
			26				
			28				
	Wt	59	30			GC	CLAYEY GRAVEL; yellowish brown; 20-30% fines; 20% fine to coarse sand; fine to coarse grained; FeO stained; very stiff; no product odor.
			32				
	Wt	25	34			CL	CLAY; olive to yellowish brown; moderate plasticity; FeO stained; 0-5% fine to coarse sand; very stiff; no product odor.
			36				
			38				
	Wt	70	40				Bottom of Boring at 40-1/2'

LOCATION MAP



PACIFIC ENVIRONMENTAL GROUP, INC.

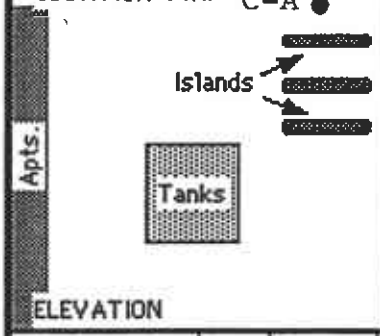
WELL / BORING NO. C-4
PAGE 1 OF 1

PROJECT NO. 120-57.01
LOGGED BY: E.G.
DRILLED BY: BAYLAND
DRILLING METHOD: HSA
SAMPLING METHOD: CAL. MOD.
CASING TYPE: SCH. 40 PVC
SLOT SIZE: 0.020
GRAVEL PACK: CA

CLIENT: G.R. CHEVRON USA
DATE DRILLED: 8-13-87
LOCATION: HIGH AND FOOTHILL
HOLE DIAMETER: 8"
HOLE DEPTH: 40-1/2'
WELL DEPTH: 40'
WELL DIAMETER: 3"

WELL COMPLETION	MOISTURE CONTENT	PENETRATION RESISTANCE (BLOW/FT)	DEPTH (feet)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
			2			CL	ASPHALT AND BASEROCK. CLAY; fill; black; silty; 0-10% fine sand; no product odor.
	Dp	P	4			CL	CLAY; olive; 5-10% fine to coarse sand; slighty silty; stiff; damp; no product odor.
	Dp	39	10			SC	CLAYEY SAND; yellowish brown; 20-40% fines; fine to medium grained; FeO stained; trace root fragments; hard; strong product odor.
	Dp	37	14			CL	CLAY; strong brown; slightly silty; moderate plasticity; 10-30% fine sand to medium gravel; hard; no product odor.
	Dp	49	20				@ 19': no product odor.
	Dp	N/A	24				@ 24': decrease sand; no product odor.
	Mst -Wt	41	30				@ 29': olive; 0-10% fine to medium sand; hard; no product odor.
	Mst -Wt	80	34				@ 34': yellowish brown; 20-25% fine to medium sand; silty; hard; no product odor.
	Mst -Wt	>32	40				@ 39': olive; 0-10% fine to medium sand; slightly silty; hard; no product odor. Bottom of Boring at 40-1/2'

LOCATION MAP C-A



PACIFIC ENVIRONMENTAL GROUP, INC.

WELL / BORING NO. C-A
PAGE 1 OF 1

PROJECT NO. 120-57.01
LOGGED BY: E.G.
DRILLED BY: BAYLAND
DRILLING METHOD: HSA
SAMPLING METHOD: CAL. MOD.
CASING TYPE: NA
SLOT SIZE:
GRAVEL PACK:

CLIENT: G.R. CHEVRON USA
DATE DRILLED: 8-13-87
LOCATION: HIGH AND FOOTHILL
HOLE DIAMETER: 8"
HOLE DEPTH: 40-1/2'
WELL DEPTH:
WELL DIAMETER:

WELL COMPLETION	MOISTURE CONTENT	PENETRATION RESISTANCE (BLOW/FT)	DEPTH (feet)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
Backfilled with Concrete	Dp	12	4			SC	ASPHALT AND BASEROCK. CLAYEY SAND; fill; dark olive; 20-30% fines; fine to coarse grained; trace fine gravel; medium dense; damp; faint product odor to strong product odor starting at 4'. @ 5-1/2': intermixed SW and GW fill materials; some free product; still primarily SC. @7': free product. @8-1/2': free product. @10': nearly saturated with product.
		16	6				
		11	8				
		4	10				
		9					
		10	12			SC/GC	CLAYEY SAND and CLAYEY GRAVEL; interbedded; olive; 20-30% fines; silty; SAND; fine to coarse grained; 0-15% fine to medium gravel; very dense; faint product odor; GRAVEL; 15-25% fine to coarse sand; FeO mottled; fine to coarse grained; very dense; sub-rounded; damp; faint product odor.
	Dp	50	14				
		24	16				
		28	18			CL	@16': strong product odor. CLAY; strong brown; moderate plasticity; FeO mottled; slightly silty; stiff; 0-10% fine to medium sand; faint product odor.
		18					
	Mst	49	20				
			22				
		64	24				@23-1/2': faint product odor.
			26				Bottom of Boring at 25 feet.
			28				
			30				
			32				
			34				
			36				
			38				
			40				

ANAMETRIX, INC.
LABORATORY SERVICES
ENVIRONMENTAL • ANALYTICAL CHEMISTRY
2754 AIELLO DRIVE • SAN JOSE, CA 95111 • (408) 629-1132

September 9, 1987
Work Order Number 8709005
Date Received 9/02/87
PO No. 6880

John Adams
Pacific Environmental Group
1601 Civic Center Dr., Suite 202
Santa Clara, CA 95050

Three water samples were received for analysis of BTX plus low to medium boiling hydrocarbons by gas chromatography, using the following EPA method(s):

ANAMETRIX I.D.	SAMPLE I.D.	METHOD(S)
8709005-01	120-57.01 C-1	5020
-02	" C-3	"
-03	" C-4	"

RESULTS
See enclosed data sheets, Forms 1-1 thru 1-4.

If there is any more that we can do, please give us a call. Thank you for using ANAMETRIX, INC.

Sincerely,

Sarah Schoen

Sarah Schoen, Ph.D.
GC Supervisor

SRS/qp

ORGANIC ANALYSIS DATA SHEET - HYDROCARBON COMPOUNDS

Sample I.D. : 120-57.01 C-1
Matrix : WATER
Date sampled : 9-1-87
Date extracted : NA
Date analyzed : 9-4-87
Volume extracted : NA

Anametrix I.D. : 8709005-01
Analyst :
Supervisor :
Date released : 9-9-87

CAS #	Compound Name	Det. Limit (ug/ml)	(ug/ml)	Q
71-43-2	Benzene	0.001	0.8	+
108-88-3	Toluene	0.001	1.0	+
	Total Xylenes	0.001	2.9	+
	Gasoline	0.05	22	+
	Diesel / Waste Oil	0.05		NR
	Total Oil & Grease			NR

For reporting purposes, the following qualifiers (Q) are used:
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.
NR: Not requested.

Form 1-1.

ORGANIC ANALYSIS DATA SHEET - HYDROCARBON COMPOUNDS

Sample I.D. : 120-57.01 C-1 DUPLICATE
Matrix : WATER
Date sampled : 9-1-87
Date extracted : NA
Date analyzed : 9-4-87
Volume extracted : NA

Anametrix I.D. : 8709005-01
Analyst :
Supervisor :
Date released : 9-9-87

CAS #	Compound Name	Det. Limit (ug/ml)	(ug/ml)	Q
71-43-2	Benzene	0.001	0.9	+
108-88-3	Toluene	0.001	1.1	+
	Total Xylenes	0.001	3.3	+
	Gasoline	0.05	24	+
	Diesel / Waste Oil	0.05		NR
	Total Oil & Grease			NR

For reporting purposes, the following qualifiers (Q) are used:
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.
NR: Not requested.

Form 1-2.

ORGANIC ANALYSIS DATA SHEET - HYDROCARBON COMPOUNDS

Sample I.D. : 120-57.01 C-3
Matrix : WATER
Date sampled : 9-1-87
Date extracted : NA
Date analyzed : 9-4-87
Volume extracted : NA

Anametrix I.D. : 8709005-02
Analyst : [signature]
Supervisor : [signature]
Date released : 9-9-87

CAS #	Compound Name	Det. Limit (ug/ml)	(ug/ml)	Q
71-43-2	Benzene	0.001	0.011	+
108-88-3	Toluene	0.001	0.008	+
	Total Xylenes	0.001	0.007	+
	Gasoline	0.05	0.25	+
	Diesel / Waste Oil	0.05		NR
	Total Oil & Grease			NR

For reporting purposes, the following qualifiers (Q) are used:
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.
NR: Not requested.

Form 1-3.

ORGANIC ANALYSIS DATA SHEET - HYDROCARBON COMPOUNDS

Sample I.D. : 120-57.01 C-4
Matrix : WATER
Date sampled : 9-1-87
Date extracted : NA
Date analyzed : 9-4-87
Volume extracted : NA

Anametrix I.D. : 8709005-03
Analyst : [signature]
Supervisor : [signature]
Date released : 9-9-87

CAS #	Compound Name	Det. Limit (ug/ml)	(ug/ml)	Q
71-43-2	Benzene	0.001	0.52	+
108-88-3	Toluene	0.001	0.066	+
	Total Xylenes	0.001	0.13	+
	Gasoline	0.05	3.2	+
	Diesel / Waste Oil	0.05		NR
	Total Oil & Grease			NR

For reporting purposes, the following qualifiers (Q) are used:
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.
NR: Not requested.

Form 1-4.

INTERNATIONAL TECHNOLOGY CORPORATION

Pacific Environmental Group, Inc.
1601 Civic Center Drive
Suite 202
Santa Clara, CA 95050

August 31, 1987

ATTN: Erin Garner

Following are the results of analyses on the samples described below.

Project Number:	120-57.01
Lab Numbers:	S7-08-158-01 thru S7-08-158-15
Number of Samples:	15
Sample Type:	soil
Date Received:	8/21/87
Analyses Requested:	Low Boiling Hydrocarbons

The method of analysis for low boiling hydrocarbons is taken from E.P.A. Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photo-ioniozation detector.

The result for total low boiling hydrocarbons is calculated as gasoline and include benzene, toluene, ethyl benzene and xylenes.

Fred Rouse

FR/ksr

2 Pages Following - Tables of Results

IT/Santa Clara to
Pacific Environmental Group, Inc.
ATTN: Erin Garner

August 31, 1987

Summary of Results

Project Number: 120-57.01

nd = none detected

Lab Number	Sample Identification	Parts per Million - (Dry Soil Basis) Low Boiling Hydrocarbons (Gasoline)	Benzene	Toluene	Ethyl benzene and xylenes
S7-08-158-01	C-A, 8.5-10.0'	3,600.	33.	12.	350.
S7-08-158-02	C-A, 19.0-20.5'	63.	2.0	0.1	2.0
S7-08-158-03	C-A, 23.5-25.0'	52.	1.8	nd	0.4
S7-08-158-04	C-1, 9.0-10.5'	nd	nd	nd	nd
S7-08-158-05	C-1, 19.0-20.5'	nd	nd	nd	nd
S7-08-158-06	C-1, 29.0-30.5'	nd	nd	nd	nd
S7-08-158-07	C-2, 9.0-10.5'	1,200.	16.	54.	120.
S7-08-158-08	C-2, 19.0-20.5'	nd	0.07	0.8	nd
S7-08-158-09	C-2, 29.0-30.5'	48.	0.93	0.1	3.
Detection Limit		5.	0.05	0.1	0.4

IT/Santa Clara to
Pacific Environmental Group, Inc.
ATTN: Erin Garner

August 31, 1987

Summary of Results

Project Number: 120-57.01

nd = none detected

Lab Number	Sample Identification	Parts per Million - (Dry Soil Basis) Low Boiling Hydrocarbons (Gasoline)	Benzene	Toluene	Ethyl benzene and xylenes
S7-08-158-10	C-3, 9.0-10.5'	7.	0.05	nd	0.4
S7-08-158-11	C-3, 19.0-20.5'	nd	nd	nd	nd
S7-08-158-12	C-3, 29.0-30.5'	nd	nd	nd	nd
S7-08-158-13	C-4, 9.0-10.5'	580.	3.9	23.	46.
S7-08-158-14	C-4, 19.0-20.5'	nd	nd	nd	nd
S7-08-158-15	C-4, 29.0-30.5'	nd	nd	nd	nd
Detection Limit		5.	0.05	0.1	0.4

SAMPLING/ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Project No.: 120-57.01 Requested By: EJ P.O. No.: 6860

REQUEST		LABORATORY REQUIREMENTS					CHAIN OF CUSTODY				
SAMPLE TYPE: SOIL		CONTAINERS					SAMPLER'S SIGNATURE		CONTRACT LABORATORY		
SAMPLE I.D.	PARAMETERS	SIZE/TYPE	QUANTITY	PRES.	LAB	DUE DATE	SAMPLER	SAMPLE DATE	REC'D BY	COMMENTS	DATE REC'D
C-3 9'-10½'	Cmpd BTX	jar/liner	1	—	IT	9/4/87 Standard	EJ	8/14/87	MD	OK, Cool	8/21/87
C-3 M-20½'	↓	↓	↓	↓	↓	↓	↓	↓	↓	—	
C-3 29'-30½'	↓	↓	↓	↓	↓	↓	↓	↓	↓	—	
C-4 9'-10½'	↓	↓	↓	↓	↓	↓	↓	↓	↓	—	
C-4 19'-20½'	↓	↓	↓	↓	↓	↓	↓	↓	↓	—	
C-4 29'-30½'	↓	↓	↓	↓	↓	↓	↓	↓	↓	—	

SIGNATURES:

RELEASED BY: EJ Powell 8/21/87 RELEASED BY: _____ RELEASED BY: _____

RECEIVED BY: [signature] 8/21/87 RECEIVED BY: _____ RECEIVED BY: _____

RELEASED BY: _____ RELEASED BY: _____ RELEASED BY: [signature]

RECEIVED BY: _____ RECEIVED BY: _____ RECEIVED BY LAB: [signature] ITC 8/21/87 0900

PACIFIC ENVIRONMENTAL GROUP, INC.

SAMPLING/ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Project No.: 120-57.01 Requested By: JBA/EG P.O. No.: 6880

REQUEST		LABORATORY REQUIREMENTS					CHAIN OF CUSTODY				
AMPLE TYPE: WATER		CONTAINERS					SAMPLER'S SIGNATURE		CONTRACT LABORATORY		
SAMPLE I.D.	PARAMETERS	SIZE/TYPE	QUANTITY	PRES.	LAB	DUE DATE	SAMPLER	SAMPLE DATE	REC'D BY	COMMENTS	DATE REC'D
C-1	Gas BTX	40ml VOA	2	HCL	AN	9/9/87	JBA	9/1/87	BWS	1 vial cracked and destroyed	9/2/87
C-3	↓	↓	↓	↓	↓	↓	↓	↓	↓	Good	↓
C-4	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓

SIGNATURES:

RELEASED BY: _____ RELEASED BY: _____ RELEASED BY: _____

RECEIVED BY: _____ RECEIVED BY: _____ RECEIVED BY: _____

RELEASED BY: _____ RELEASED BY: _____ RELEASED BY: John B Ackerman

RECEIVED BY: _____ RECEIVED BY: _____ RECEIVED BY LAB: Burt Sutherland

PACIFIC ENVIRONMENTAL GROUP, INC.

17

SAMPLING/ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Project No.: 120-57.01 Requested By: EP P.O. No.: 6860

REQUEST		LABORATORY REQUIREMENTS					CHAIN OF CUSTODY				
AMPLE TYPE: SOIL		CONTAINERS					SAMPLER'S SIGNATURE		CONTRACT LABORATORY		
SAMPLE I.D.	PARAMETERS	SIZE/TYPE	QUANTITY	PRES.	LAB	DUE DATE	SAMPLER	SAMPLE DATE	REC'D BY	COMMENTS	DATE REC'D
C-A 3½'-10'	Gas BTX	jar/ring	1	—	IT	~~8/14/87~~ 8/24/87	EP	8/13/87	WT	~1½ INCHES OF H2O IN JAR W/ SOIL CORE	8/21/87
C-A 19'-20½'										OK, COOL	
C-A 24½'-25'										~1½ INCHES OF H2O IN JAR W/ SOIL CORE	
C-1 7'-10½'										OK COOL	
C-1 19'-20½'										✓	
C-1 24'-30½'										—	
C-2 9'-10½'										—	
C-2 19'-20½'										—	
C-2 24'-30½'										—	

SIGNATURES:

RELEASED BY: [signature] 8/21/87 RECEIVED BY: [signature]

RELEASED BY: _____ RECEIVED BY: _____

RELEASED BY: _____ RECEIVED BY: _____

RELEASED BY: _____ RECEIVED BY: _____

RELEASED BY: _____ RECEIVED BY: _____

RELEASED BY: [signature] RECEIVED BY LAB: [signature] ITSA 8/21/87 0900

PACIFIC ENVIRONMENTAL GROUP, INC.